REMARKS

By this amendment, claims 1, 5, and 6 and the drawings are revised and claim 2 is canceled to place this application in condition for allowance. Currently, claims 1, 3, 5-7, 15, 17, 21 and 22 are before the Examiner for consideration on their merits.

First, Applicants' attorney would like to thank Examiner Carrillo for granting a personal interview on April 5, 2006 regarding this application.

This Amendment is being filed in response to the issues raised in the rejection and those expressed in the interview.

Second, Applicants have revised the drawings to indicate that Figure 4 is not prior art. In the Office Action dated February 22, 2005, the Examiner requested that Figure 4 be labeled as prior art and this suggestion was followed in the Letter to the Draftsperson filed on May 17, 2005. Upon review, Figure 4 should not be labeled prior art, and this correction is being made by submission of another Letter to the Draftsperson. The Examiner is requested to explain the reasoning for requiring Figure 4 to be designated as prior art in any subsequent requirement.

In the Office Action, the Examiner raises two issues, one under 35 U.S.C. § 112, second paragraph, and the other under 35 U.S.C. § 102(b). These issues are addressed below, with the anticipation rejection based on the Mabuchi patent addressed first.

Mabuchi

Currently, the Examiner is contending that Mabuchi anticipates independent claims 1 and 5. This issue was discussed in the interview, and Applicants' Attorney

argued that Mabuchi cannot anticipate either of claims 1 and 5 since, at best, Mabuchi only adjusts the amount of acid solution being supplied to the last tank of the operation, and there is no supply of a controlled amount of acid to the last two tanks.

It is true that Mabuchi monitors a number of different variables and the affect of these variables is shown, among other places, in Figures 6-13. With particular reference to Figures 7 and 8, and Example 2 beginning on col. 10, line 52, the concentration of HCl, the concentration of Fe ion, and the temperature distribution are obtained by selecting a number of variables such as initial temperature of the strip, temperature of the solution, etc., and using Mabuchi's algorithm. The graph of Figure 7 shows what the concentrations would be during operation in a practical plant, and Mabuchi explains in col. 11, lines 5-10 that the concentrations produced by the algorithm are well in agreement with the practical plant. Figure 9 goes on to show the descaling rate using the algorithm. This figure shows that descaling at the end of last tank is at 110% so that an overpickling state occurs. Figure 10 shows that when the temperature is lowered, the descaling rate is lowered to 100% at the end of the last tank.

In col. 11, lines 23-30, an initial calculation is made using the algorithm to get an initial descaling rate. If the descaling rate exceeds 100%, then a further calculation is made with utilization of a different temperature to as to obtain a descaling rate of 100%.

In this same regard, Example 3 is similar to Example 2 but that different variables are used. Here, the line speed is reduced such that the descaling rate goes

up to 580% as shown in Figure 11. In this example, different treatments are used, including changing the concentration of the acid from the acid recovery system or ARP, changing the temperature of the solution, and changing the amount of acid from the ARP. Figure 12 shows the results of these changes, i.e., the descaling rate at the outlet of the last tank is now 100%. While Mabuchi may be changing the concentration of the HCl or the amount of the acid, this change is only reflected in the acid being supplied to the last tank of the system. This is clear from Figure 1 wherein the sensor 9 monitors the concentration and flow rate of the acid solution into the last tank, see col. 9, lines 45-50. Thus, at most, Mabuchi teaches the control of the acid concentration or acid amount into the last tank. However, this is NOT the same as the invention of claims 1 and 5 wherein the acid amount to be supplied to the last two tanks of a system is determined, a distribution ratio is determined as to how much acid should be supplied to each of the last two tanks, and the supply of the acid to the last two tanks is controlled using the distribution ratio. These features of the claims are totally absent from Mabuchi, and the Examiner cannot contend that Mabuchi anticipates claims 1 and 5 for this reason.

In the rejection, the Examiner points to col. 2, lines 39-65 to support the rejection. This disclosure merely teaches that the algorithm of Mabuchi is used to control the pickling operation in conjunction with variables such as those described above. The statement "determining quantities of state of operation" does not teach the claimed method. Instead, Mabuchi is merely referring to the fact that the variable are changed as described above to meet the 100% descaling rate, see col. 3, lines 7-10.

While it is true that Mabuchi calculates the concentration of the acid in the system as shown in Figure 7, knowing this concentration does not equate to the practice of the steps of claims 1 and 5. With the knowledge of the concentration, Mabuchi teaches one of skill in the art that the descaling rate can be controlled by adjusting the concentration or amount of acid being supplied to the last tank from the ARP, and this is not the same as the control of supply of acid to the two tanks of claims 1 and 5 using the total amount of acid and distribution ratio.

The Examiner could conclude that since Mabuchi recognizes the concept of controlling the descaling rate by adjustment of the concentration or amount of acid used, one of skill in the art could extend that control to two or more tanks in Mabuchi. However, to draw this conclusion, the Examiner must have a reason to do so.

It is first contended that there is no motivation to draw such a conclusion other than the hindsight reconstruction of the prior art in light of Applicants' disclosure. Any rejection based on this supposition could not be sustained on appeal.

Even if the Examiner were to conclude that it would be obvious to control the amount of acid by supplying the acid to more than one tank, the Examiner would also have to conclude that it would be obvious to develop a system of how the acid would be supplied to the more than one tank. Put another way, the Examiner would also have to contend that it would be obvious to use a method similar to that claimed wherein the amount of acid to be supplied is defined, the distribution ratio is determined, and the amount of acid to the two tanks is controlled using the distribution ratio. There is no mention whatsoever of determining a distribution ratio in Mabuchi for

the purposes of controlling the input of acid to at least the last two tanks of a pickling system. Therefore, where would the motivation come from for the Examiner to conclude that not only would it be obvious to modify the supply into the last tank of Mabuchi so that the supply would go into the last two tanks of Mabuchi, but also control the supply in the manner claimed? There just is no basis to draw this conclusion without using the invention as a teaching template, and any rejection based on 35 U.S.C. § 103(a) would be as equally unsupported in fact as the current rejection based on 35 U.S.C. § 102(b). The Examiner is called upon to support any further rejection of the claims based on anticipation or obvious with a full explanation of the reasons for the rejection.

The Examiner's attention is also directed to the specification, page 19, and the testwork detailed in the Example on pages 20 and 21 of the application. This point was argued on page 16 of the Amendment of May 17, 2006 and is reiterated again. Page 19 shows that marked improvements in productivity are attained practicing the invention without having to revamp the pickling line. The example in the specification shows that unexpected improvements are attained by control of the acid supply to the last two tanks as defined in the claims. These results are not expected in Mabuchi and weigh in favor of the patentability of claims 1 and 5.

In light of the above, the rejection based on 35 U.S.C. § 102(b) is improper and must be withdrawn. Further, there is no legitimate basis to reject claims 1 and 5 under 35 U.S.C. § 103(a).

35 U.S.C. § 112, second paragraph

Turning now to the rejection under 35 U.S.C. § 112, second paragraph, the Examiner contends in the rejection that the language regarding the distribution ratio is unclear. More particularly, the rejection states that claims 1 and 5 are indefinite because it is unclear how the distribution ratio is calculated based on the pickling pattern and the traveling speed.

It is respectfully contended that claims 1 and 5 are not indefinite when considering how definiteness is determined. Definiteness of claim language is analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. *In re Moore*, 169 USPQ 236 (CCPA 1971).

As a first observation and in light of the aforementioned interview, it seems as though the Examiner is requiring that the details of the determination of the distribution ratio be inserted into the claims to make the claims definite. That is, the Examiner would like Applicants to include further process steps to define the exact manner in which the distribution ratio is determined using a pickling pattern and a traveling speed. Applicants contend that 35 U.S.C. § 112, second paragraph, does not require such detail in claims 1 and 5 in order to set out and circumscribe a particular area with a reasonable degree of precision and particularity.

Moreover, insisting that Applicants limit their claims to the particulars of the distribution ratio determination unfairly limits the invention. Applicants' invention is not the particulars of the determining the distribution ratio. Rather, the important aspect of

the invention is the discovery that improved pickling results can be obtained when the distribution ratio is determined and preset as shown on page 20 of the specification to control an actual pickling process using the traveling speed and the pickling pattern.

In this regard, it is contended that the claim language is not vague and/or indefinite as to how the distribution ratio is described in claims 1 and 5. First and as previously argued, the distribution ratio is clearly defined in the specification. Figure 4 shows that knowing the weight loss occurring in each tank allows one to determine the relative weight loss between the last two tanks. That is, Figure 4 shows how to determine the distribution ratio for a given traveling speed (which defines the exit points of each tank) and a pickling pattern. Thus, there can be no question as to the meaning of the distribution ratio based on the explanation in the specification.

It is also contended that the terms "pickling pattern" and "traveling speed" are not unclear. The meaning of traveling speed of the strip is evident on its face. The meaning of pickling pattern is made clear from the description of Figure 3 as detailed on pages 12 and 13 of the application.

The next question is whether the language that the distribution ratio is determined based on a pickling pattern and a traveling speed is unclear. Put another way, it is unclear as to how it is determined. The answer to this question is that the determination of the distribution ratio is clear and the description of this determination in the specification as considered by one of skill in the art means that the language recited in claims 1 and 5 is clear.

The language at issue states that traveling speed and pickling pattern are used to determine the distribution ratio. On its face, there is no question that the claim is saying that these two variables are used to determine the distribution ratio. Thus, the language itself is not vague in what it says.

The issue raised in the Office Action appears to be an allegation that saying that the distribution ratio is determined by the two variables is insufficient, and that more language is needed to define the determination step. Applicants do not agree with this position; it is flawed for two reasons. First, it unfairly requires the Applicants to narrow their claims beyond the real invention without a legitimate basis. Second, it requires the Applicants to add process steps that are unnecessary when considering what is required to meet the test for definiteness, i.e., the teachings of the specification and the level of skill in the art, see *Moore* supra.

To reiterate, the question is whether the claim language that says that the distribution rate is determined using the traveling speed of the strip and the pickling pattern defines the invention with the particularity required by 35 U.S.C. § 112, second paragraph. This question is answered in light of the test described above in *Moore*; reading the claim language in light of the specification and that which is known in the art. The answer to the question is yes.

When viewing the specification, it is submitted that Figure 4 when view from the standpoint of the artisan provides the reasoning that the claim language is definite. Figure 4 teaches that the slope of the line relates to the pickling speed, see page 15, line 7. Notably the pickling pattern is also related to the pickling speed, see page 12,

lines 28 and 29. Thus, knowing the exit of the strip from each tank, i.e., the travel speed, and slope of the line, the pickling pattern, the distribution ratio can be determined. The time of Figure 4 directly relates to the traveling speed since the travel speed and tank length produces the time in tank, and this is clearly evident to the artisan. To one of skill in the art, there is no confusion as to the determination of the distribution loss when knowing the traveling speed (time in tank of known length) and the pickling pattern or how the steel descales over time or distance. Therefore, reading the language of claims 1 and 5 in light of the description of Figure 4 and the level of skill in the art leads to only one conclusion, the claims in question are fully definite under 35 U.S.C. § 112, second paragraph, and the rejection as applied to these claims should be withdrawn.

In response to the Examiner's query regarding how Figures 3 and 4 are related, it is contended that one of skill in the art would not be confused as to how these Figures interrelate. Since there is no confusion, one of skill in the art would readily understand that Figure 3 is similar to Figure 4 in terms of defining a descaling rate over time. In this regard, reference is first made to Figure 1 in which a series of pickling tanks are provided over a given distance. This means that the position of the end of each of the tanks can be described in terms of time (seconds for example) when the traveling rate is constant. This end tank distance can be converted to time in seconds in the case of Figure 1. More particularly, L (distance) = (traveling speed or distance/time) x time can be expressed as $L = A \times t$ with A as a constant. For example, if each tank is 100 meters long and the traveling speed is 100 meters per hour, the strip

exits the third tank after three hours and the fourth tank after four hours, and the distance of travel of 400 meters can be related in terms of time in four hours.

In Figures 3 and 4, therefore, the horizontal axis can indicate distance or time, and the vertical axis can also indicate descaling rate or scale loss. Referring to Figure 3, descaling rates for three different patterns are shown for a set traveling speed in terms of distance. Since the traveling speed is set or known, and the pattern is shown over a given distance, this means that the horizontal axis can be viewed from a time standpoint as well. Knowing the time in tank for the patterns shown in Figure 3 results in the same relationship shown in Figure 4 and the distribution ratio can be determined thusly. Thus, there is no confusion regarding the relationship between Figures 3 and 4.

Another way for the Examiner to look at Figure 3 is with reference to the table relating three patterns and three traveling speeds for nine distribution ratios as explained on page 20 of the specification.

An exemplary table is shown below.

	Pattern 1	Pattern 2	Pattern 3
Speed 1			
Speed 2			
Speed 3			

As described above, Figure 3 represents a series of distribution ratios for a given speed since three patterns are shown for the same speed. This would be represented

by the first row in the table above. Each curve in Figure 3 represents a manner of descaling or pickling pattern for a given speed. What the table described on page 20 of the specification says is that there would be two other graphs similar to Figure 3. Each additional graph would show three patterns for Speed 2 and three patterns for Speed three, with each graph defining a distribution ratio for each pattern at the graph's speed. These two other graphs similar to Figure 3 would complete the other two rows in the table, and the result of the three graphs would be nine distribution ratios as explained on page 20 of the specification.

To summarize, it is strenuously submitted that the term distribution ratio is not indefinite when considering the teachings of the specification. Secondly, the language in the claim that the distribution ratio is determined based on a traveling speed and a pickling pattern does not make the claim indefinite. One of skill in the art, reading the specification, would clearly understand the meaning of this phrase and further definition is not required to define the invention within the limits imposed by 35 U.S.C. § 112, second paragraph.

To summarize, it is contended that the rejection based on 35 U.S.C. § 102(b) is in error and must be withdrawn. Also, there is no basis to conclude that Mabuchi can establish a *prima facie* case of obviousness. Finally, the rejection based on 35 U.S.C. § 112, second paragraph is improper and should be withdrawn.

The Examiner is respectfully requested to examine this application in light of this amendment and promptly pass all pending claims onto issuance.

The above constitutes a complete response to all issues raised in the Office Action dated October 14, 2006.

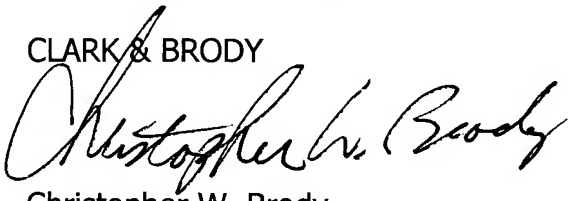
If the Examiner believes that another interview with Applicant's attorney would be helpful in expediting prosecution of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

Again, reconsideration and allowance of this application is respectfully requested.

A petition for a three month extension of time fee is hereby made. A check in the amount of $1,020.00 is attached herewith. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,

CLARK & BRODY



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